

Electronic Payments and Money: Recent Developments and Issues

Presentation to the Bank of Mexico conference on
“The Evolving Landscape of Payment Systems”
Mexico City, October 14-15, 2014



Organization of the presentation

- From Money to E-Payments and E-Money: The Changing Landscape for Retail Payments
- Implications for the central bank
- Potential roles of the central bank
- E-money research at the Bank of Canada

From Money to E-Payments and E-Money: The Changing Landscape for Retail Payments

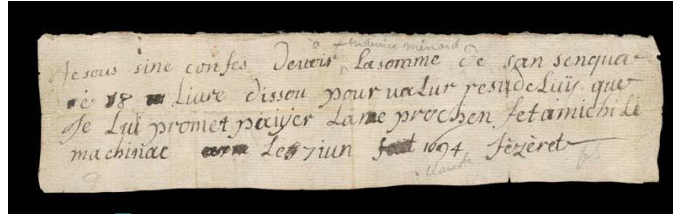


The way people making payments is changing constantly: payment innovations in earlier centuries

Wampum beads



Promissory notes



Province of Canada note



Coins: 15 sols



Playing cards



Bank of Commerce
\$5 note

Cash transactions

Advantages

- Easy to use
- Convenient
- Quick
- Anonymous (private)
- No need for a 3rd party for transactions
- Final

Problems

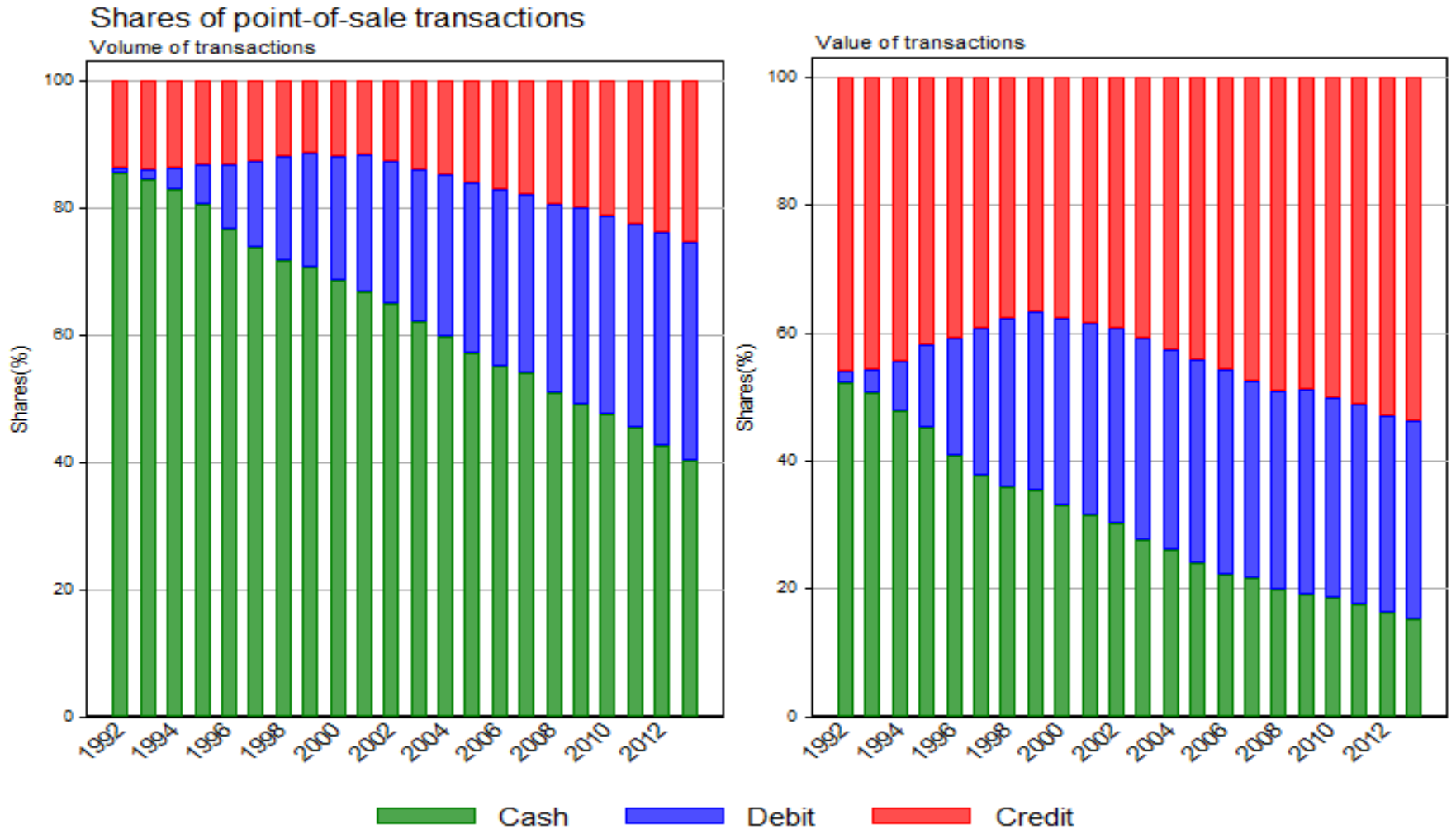
- Counterfeiting
- Thief, robbery or lost
- Not suitable for remote transaction
- Inconvenient for large value transactions

E-payments

E-payments:

- Electronic payment methods that allow users to access funds in their deposit or credit accounts in financial institutions to initiate payments; (e.g. debit and credit cards, internet banking)
 - FIs are under prudential regulations
 - Bank deposits are usually covered by deposit insurance
 - Banks settle their obligations in payment and clearing systems that are subject to oversight

How do Canadians pay?



But cash is still used a lot in many countries, mainly for small value transactions

	AU	AT	CA	FR	DE	NL	US
Year	2010	2011	2009	2011	2011	2011	2012
<i>Payment share by volume</i>							
Cash	0.65	0.82	0.53	0.56	0.82	0.52	0.46
Debit	0.22	0.14	0.25	0.31	0.13	0.41	0.26
Credit	0.09	0.02	0.19	0.01	0.02	0.01	0.19
<i>Payment share by value</i>							
Cash	0.32	0.65	0.23	0.15	0.53	0.34	0.23
Debit	0.32	0.25	0.30	0.43	0.28	0.60	0.27
Credit	0.18	0.05	0.41	0.03	0.07	0.04	0.28
<i>Average transaction values (\$)</i>							
Cash	15.2	24.7	12.9	10.9	25.0	17.4	17.8
Debit	43.3	55.6	37.6	56.6	75.7	39.1	37.3
Credit	60.0	85.9	64.7	92.5	160.5	95.6	56.4

Source: (Bagnall et al., 2014)

E-money

E-money:

- Monetary value stored on an electronic device such as a chip card or a hard drive in personal computers or servers.
 - Centralized systems that are prepaid, liability of the issuer, and multi-purpose, e.g. Octopus card in Hong Kong, M-PESA in Kenya, PayPal prepaid balances
 - Decentralized systems that use cryptography for authenticating and validating transactions, e.g. cryptocurrencies such as Bitcoin

E-money (centralized) adoption has been slower than expected in Canada and elsewhere



Number of cryptocurrencies is exploding but acceptance still low



Select
Amount

Insert
Cash

Get
your
bitcoins

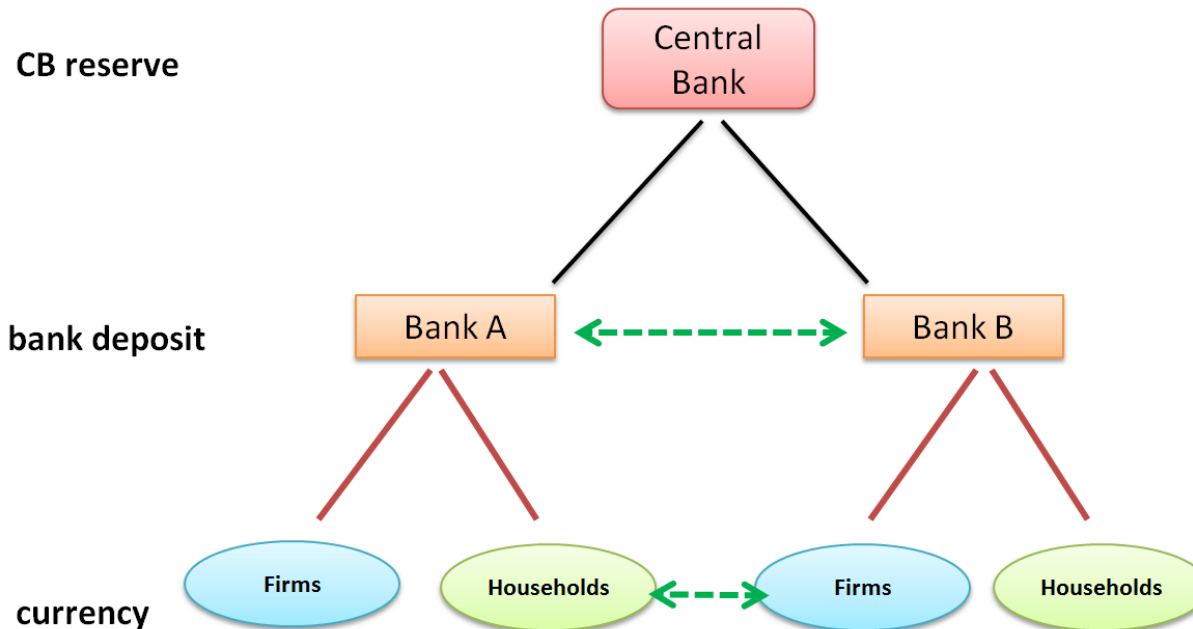
- Less than 1000 merchants in Canada accept bitcoins, mostly online
- Worldwide ranges from 5,000 to over 70,000, including major online merchants such as Expedia and Dell

Implications for the central bank



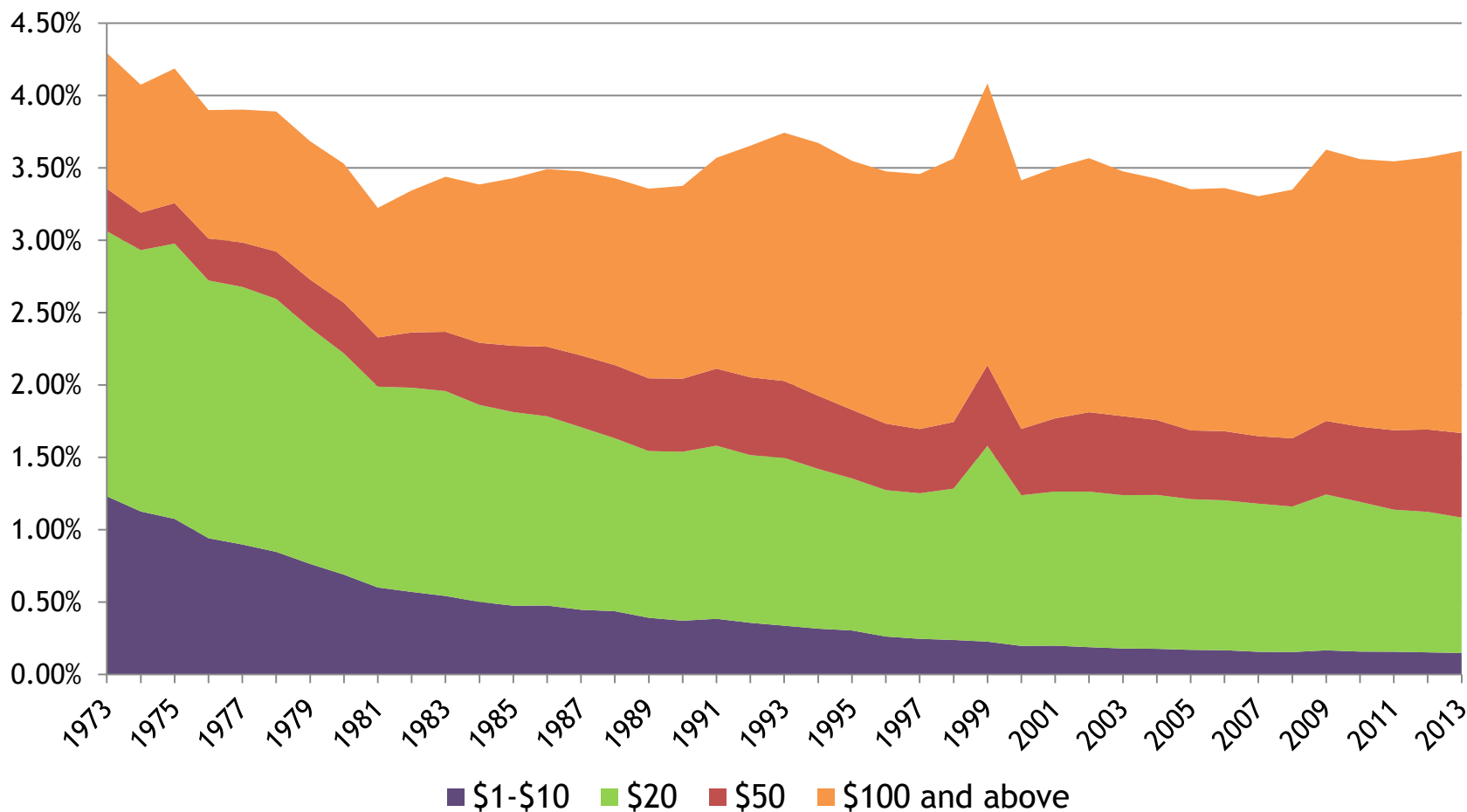
Implications for the central bank

- Cash demand, central bank balance sheet and seigniorage revenue
- Financial system stability
- Monetary policy implementation



Demand for banknotes remains stable relative to GDP in Canada, although Canadians are using less cash for making payments

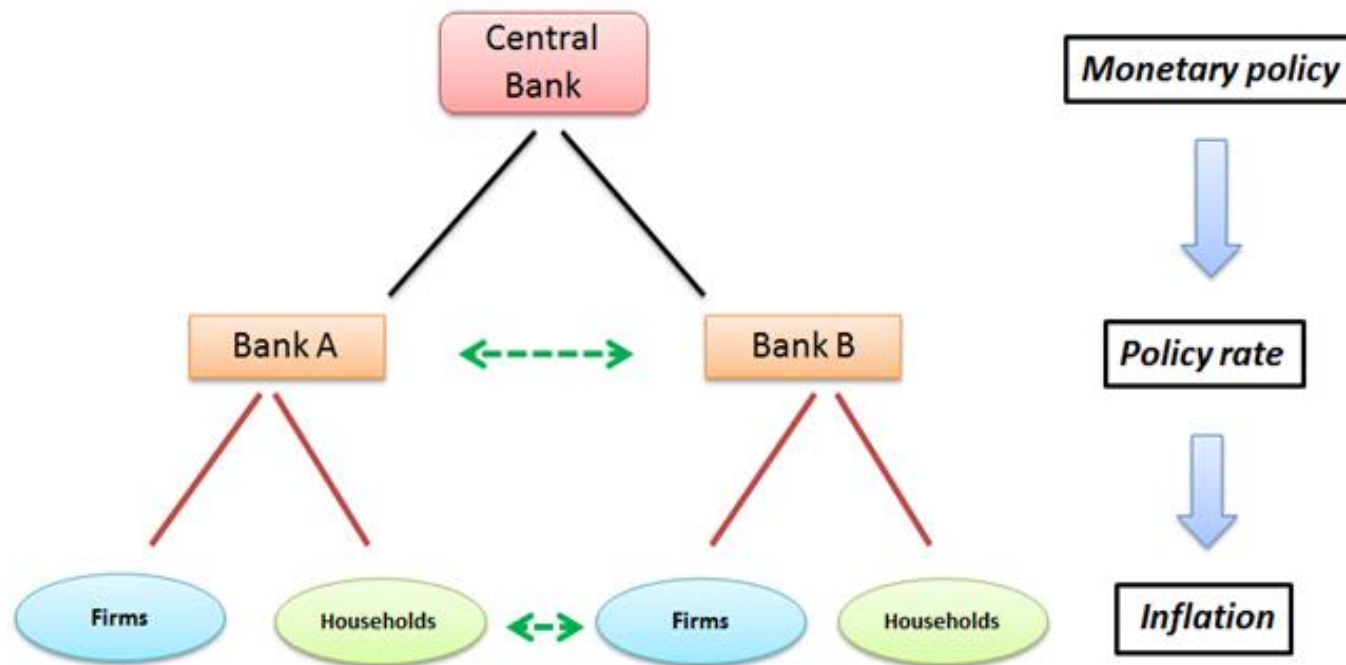
Banknotes outstanding over GDP



Implications for the financial system

- What is the impact on the central bank's financial stability function to
 - Provide liquidity to the financial system
 - Provide emergency lending assistance to a bank facing liquidity shortage
 - Intervene by buying and selling securities and financial instruments when there is a severe and unusual distress in the financial system
- How can the central bank mitigate such impacts?
- What are the potential effects of the increasing reliance on cryptocurrencies on the banking and financial system?

Implications for monetary policy



- Effect on participation in the settlement system and demand for settlement balances
- Effect on central bank's ability to provide liquidity and control the policy interest rate
- Effect on the implementation framework and the transmission mechanism

Potential roles of the central bank



The potential roles of the central bank

- Central bank as catalyst/facilitator
 - Monitoring and research
 - Helping set standards: e.g. interoperability, security, data protection
- Central bank as regulator
 - E-money regulations
 - The case of Bitcoin
- Central bank as issuer
 - What are the welfare implications for public versus private issuance of e-money
 - What are the public policy arguments for CB intervention in terms of issuance?

Research on money and e-money at the Bank of Canada



Main goals of research agenda

- To deepen our understanding of digital alternatives to cash, and their likely evolution and pace of adoption
 - Method of payment surveys
 - Experimental studies and theoretical modeling work
- To analyze the implications of an increased reliance on these alternatives for the Bank;
 - Cryptocurrencies as a medium of exchange and financial asset
- And to establish a view on the potential role of public institutions as e-money issuers
 - Historical evidence
 - Theoretical models to study the welfare comparison between private and public issuance

<http://www.bankofcanada.ca/research/e-money/>

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E-Money

Advances in technology enable a number of innovations that change the way Canadians pay for goods and services. Some products, for example the debit card, offer a way to access funds in a bank deposit account and can be thought of as electronic payments, or e-payments. Other innovations offer a way to directly store monetary value in an electronic device or in a communications network. We call those electronic money, or e-money for short.

E-Money and the Bank of Canada

Understanding and monitoring e-money products is an important part of the Bank of Canada's research agenda.

The Bank of Canada has several reasons to study e-money:

- We design, produce and distribute Canada's bank notes. Although people still use cash, widespread adoption of e-money could change the demand for cash. You can read here about our research on this topic.
- We oversee Canada's payment clearing and settlement systems. The Bank has a specific oversight role for payment systems that are systemically important, and it promotes the safety and efficiency of other payment systems that may affect the financial or economic welfare of Canadians

Briefing on Digital Currencies

In an educational session on e-money to the Senate of Canada's Standing Committee on Banking, Trade and Commerce. Grahame Johnson and Lukasz Pomorski highlight recent innovations in Canada's payments system and the economic needs that these innovations satisfy.

[Read More](#)

Backgrounders

Decentralized E-Money

7 May 2014

Decentralized e-money is stored and flows through a peer-to-peer computer network that directly links users, much like chat rooms. No one user controls the network.

Content Type(s): [Backgrounders](#), [Money](#) | Topic(s): [E-Money](#)

Thank you

